What is the speed of 60 mi/hr in m/s?

(1 mile = 1609 m)

a. 0.45
b. 26.82
c. 2.24
d. 15.8

In the equation $V = kr^3$ relating the volume of a sphere to it's radius, what is the constant of proportionality?

a. k
b. r
c. V
d. r^3

What kind of relationship might exist between the strength of the ocean's undertow and the speed with which a swimmer can swim into the shore?

a. Directly proportional
b. Inversely proportional
c. I have no idea

SOLUTIONS

What is the speed of 60 mi/hr in m/s?

(1 mile = 1609 m)

26.82

60 mi/hr * [1 hr/60 min] * [1 min/60 sec] * 1609 m/1mi]

Check your units – hr cancel, min cancel, mi cancel, left with answr in m/sec

In the equation $V = kr^3$ relating the volume of a sphere to it's radius, what is the constant of proportionality?

V is the volume, and r is the radius. 'k' is the constant of proportionality – it's a constant number in front of the equation with the variables (r)

What kind of relationship might exist between the strength of the ocean's undertow and the speed with which a swimmer can swim into the shore?

This question is a bit tricky, due to the wording. The undertow is trying to pull the swimmer out to sea, and the swimmer is trying to overcome that pull, to make it to shore. The stronger the pull out, the harder it is for the swimmer to overcome the pull, to make it to shore. So relative to the shore it appears the swimmer isn't going very fast, because they're being pulled out. It would appear there is an inverse relation – stronger undertow means it appears the swimmer is going more slowly toward shore.